



MILITARY ENGINEER SERVICES (MES) MATERIAL TESTING LABORATORY

Mobile: 01769-012888, <http://mes.org.bd>



TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Page no: 657

Job No : 147/2025-2026(Steel).
Name of Client : GE (Army) Chattogram.
Ref.ltr.No : CEA/43 of 2025-2026/08/E-6 Dt.10 Jun'2026.
Project Name : Construction of 1 x SMBK and CH/DH & Recreation Room.
Dt. of Sample Collection : 17 Jun'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : Baizid B-420 DWR.
Dt. Of Test : 18 Jun'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.394 10.00	0.402 10.21	0.1217 78.5398	0.432 0.643	0.432 0.643	10517.09 46.78	86392 596	89850 620	13199.09 58.71	108423 748	110347 761	1.26	20.5	21		
2	0.394 10.00	0.402 10.21	0.1217 78.5398	0.432 0.643		11110.25 49.42	91264 629		13496.83 60.04	110869 765		1.21	20.5			
3	0.394 10.00	0.402 10.21	0.1217 78.5398	0.432 0.643		11187.01 49.76	91895 634		13603.83 60.51	111748 771		1.22	21			

Observation on Specimen(if any):

ASTM A61M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Convein factor: 1.0 Mpa = 1.0 N/mm²= 145 Psi. Strengths are based on nominal area.

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
Nominal area, sq.mm	50.3	79	113	201	314	380	491	615	804	1018	1257	1963	2827
Nominal weight, kg/m	0.395	0.617	0.888	1.578	2.466	2.98	3.853	4.834	6.313	7.99	9.865	15.41	22.2

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.

Area and weight of 8mm & 22mm dia. Bars are derived based on principle follwed for other sizes in Table A1.1

Actual dia. and TS/YS ratio are provided for informative purpose only. These are not requirements of ASTM A615M-16.

Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

ASTM A615M -16 Tensile Requirements for Common Steel Grades

	Grade 60 [420]	Grade 75 [520]	Grade 80 [550]
Tensile strength, min.psi [Mpa]	90 000 [620]	100 000 [690]	105 000 [725]
Yield Strength, min. psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]

Elongation in 8 in. [200 mm], min, %

Bar Designation No.

10, 12, 16, 20

25, 22

28, 32, 36, 40, 60

9

8

7

7

7

6

7

7

6

Report Prepared by :

MD IKBAL HOSSEN

SAE B/R

AHQ E in C 's Br

Wks Dte, Dhaka Cantt.

Test Performed by :

AHASAN HABIB

AE B/R

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TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Job No : 147/2025-2026(Steel).
Name of Client : GE (Army) Chattogram.
Ref.ltr.No : CEA/43 of 2025-2026/08/E-6 Dt.10 Jun'2026.
Project Name : Construction of 1 x SMBK and CH/DH & Recreation Room.
Dt. of Sample Collection: 17 Jun'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : Baizid B-420 DWR.
Dt. Of Test : 18 Jun'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.472 12.00	0.482 12.24	0.175 113.097	0.621 0.924	0.621 0.924	14194.67 63.14	80973 558	80646 556	18725.93 83.30	106821 737	106945 738	1.32	22.5	1	23	1
2	0.472 12.00	0.482 12.24	0.175 113.097	0.621 0.924		14143.49 62.91	80681 556		18725.93 83.30	106821 737		1.32	21			
3	0.472 12.00	0.482 12.24	0.175 113.097	0.621 0.924		14073.71 62.60	80283 554		18791.06 83.59	107193 739		1.34	24.5			

Observation on Specimen(if any):

ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Conveion factor: 1.0 Mpa = 1.0 N/mm²= 145 Psi. Strengths are based on nominal area.

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
Nominal area, sq.mm	50.3	79	113	201	314	380	491	615	804	1018	1257	1963	2827
Nominal weight, kg/m	0.395	0.617	0.888	1.578	2.466	2.98	3.853	4.834	6.313	7.99	9.865	15.41	22.2

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.

Area and weight of 8mm & 22mm dia. Bars are derived based on principle follwed for other sizes in Table A1.1

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Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

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	Grade 60 [420]	Grade 75 [520]	Grade 80 [550]
Tensile strength, min.psi [Mpa]	90 000 [620]	100 000 [690]	105 000 [725]
Yield Strength, min. psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]

Elongation in 8 in. [200 mm], min, %

Bar Designation No.

10, 12, 16, 20	9	7	7
25, 22	8	7	7
28, 32, 36, 40, 60	7	6	6

Report Prepared by :

MD IKBAL HOSSEN

SAE B/R

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Wks Dte, Dhaka Cantt.

Test Performed by :

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TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Page no: 659

Job No : 147/2025-2026(Steel).
Name of Client : GE (Army) Chattogram.
Ref.ltr.No : CEA/43 of 2025-2026/08/E-6 Dt.10 Jun'2026.
Project Name : Construction of 1 x SMBK and CH/DH & Recreation Room.
Dt. of Sample Collection: 17 Jun'2026

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : Baizid B-420 DWR.
Dt. Of Test : 18 Jun'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.630 16.00	0.640 16.26	0.312 201.062	1.096 1.631	1.096 1.631	24755.20 110.12	79434 548	78692 543	32619.78 145.10	104669 722	103619 715	1.32	20.5		21	
2	0.630 16.00	0.640 16.26	0.312 201.062	1.096 1.631		24510.96 109.03	78650 542		32768.65 145.76	105147 725		1.34	19			
3	0.630 16.00	0.640 16.26	0.312 201.062	1.096 1.631		24306.26 108.12	77993 538		31489.29 140.07	101042 697		1.30	23.5			

Observation on Specimen(if any):

ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
Nominal area, sq.mm	50.3	79	113	201	314	380	491	615	804	1018	1257	1963	2827
Nominal weight, kg/m	0.395	0.617	0.888	1.578	2.466	2.98	3.853	4.834	6.313	7.99	9.865	15.41	22.2

Conveion factor: 1.0 Mpa = 1.0 N/mm² = 145 Psi. Strengths are based on nominal area.

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.

Area and weight of 8mm & 22mm dia. Bars are derived based on principle follwed for other sizes in Table A1.1

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Yield Strength, min. psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]
Elongation in 8 in. [200 mm], min, %			

Bar Designation No.

10, 12, 16, 20	9	7	7
25, 22	8	7	7
28, 32, 36, 40, 60	7	6	6

Report Prepared by :

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TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Page no: 660

Job No : 147/2025-2026(Steel).
Name of Client : GE (Army) Chattogram.
Ref.ltr.No : CEA/43 of 2025-2026/08/E-6 Dt.10 Jun'2026.
Project Name : Construction of 1 x SMBK and CH/DH & Recreation Room.
Dt. of Sample Collection: 17 Jun'2026

Copy No : 04
Sample Specimen : Length 600mm , Dia 20mm
Sample Grade : 60
Frog Mark : Baizid B-420 DWR.
Dt. Of Test : 18 Jun'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.787 20.00	0.794 20.16	0.4869 314.1593	1.684 2.505	1.684 2.505	34834.23 154.95	71536 493	73041 504	46108.88 205.10	94690 653	95975 662	1.32	23	24	24	24
2	0.787 20.00	0.794 20.16	0.4869 314.1593	1.684 2.505		36385.75 161.85	74722 515		47260.31 210.22	97054 669		1.30	21.5			
3	0.787 20.00	0.794 20.16	0.4869 314.1593	1.684 2.505		35480.89 157.83	72864 503		46834.63 208.33	96180 663		1.32	26.5			

Observation on Specimen(if any):

ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Conveion factor: 1.0 Mpa = 1.0 N/mm² = 145 Psi. Strengths are based on nominal area.

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
Nominal area, sq.mm	50.3	79	113	201	314	380	491	615	804	1018	1257	1963	2827
Nominal weight, kg/m	0.395	0.617	0.888	1.578	2.466	2.98	3.853	4.834	6.313	7.99	9.865	15.41	22.2

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Tensile strength, min. psi [Mpa]	90 000 [620]	100 000 [690]	105 000 [725]
Yield Strength, min. psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]
Elongation in 8 in. [200 mm], min, %			

Bar Designation No.

10, 12, 16, 20	9	7	7
25, 22	8	7	7
28, 32, 36, 40, 60	7	6	6

Report Prepared by :

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TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Page no: 661

Job No : 147/2025-2026(Steel).
 Name of Client : GE (Army) Chattogram.
 Ref.ltr.No : CEA/43 of 2025-2026/08/E-6 Dt.10 Jun'2026.
 Project Name : Construction of 1 x SMBK and CH/DH & Recreation Room.
 Dt. of Sample Collection: 17 Jun'2026

Copy No : 05
 Sample Specimen : Length 600mm , Dia 25mm
 Sample Grade : 60
 Frog Mark : Baizid B-420 DWR.
 Dt. Of Test : 18 Jun'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m		lb kn	psi Mpa		lb kn	psi Mpa		(Fult/Fy)	8inch	5d	8inch	5d
1	0.984 25.00	0.989 25.11	0.7609 490.8739	2.613 3.888		57632.43 256.36	75747 522		79316.42 352.82	104246 719		1.38	18.5			
2	0.984 25.00	0.989 25.11	0.7609 490.8739	2.613 3.888	2.613 3.888	56425.18 250.99	74160 511	74580 514	74450.20 331.17	97851 675	99646 687	1.32	23.5		22	
3	0.984 25.00	0.989 25.11	0.7609 490.8739	2.613 3.888		56176.28 249.88	73833 509		73682.58 327.75	96842 668		1.31	23.5			

Observation on Specimen(if any):

ASTM A61M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Conveion factor: 1.0 Mpa = 1.0 N/mm2= 145 Psi. Strengths are based on nominal area.

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
Nominal area, sq.mm	50.3	79	113	201	314	380	491	615	804	1018	1257	1963	2827
Nominal weight, kg/m	0.395	0.617	0.888	1.578	2.466	2.98	3.853	4.834	6.313	7.99	9.865	15.41	22.2

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.

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Tensile strength, min.psi [Mpa]	90 000 [620]	100 000 [690]	105 000 [725]
Yield Strength, min. psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]

Elongation in 8 in. [200 mm], min, %

Bar Designation No.

10, 12, 16, 20	9	7	7
25, 22	8	7	7
28, 32, 36, 40, 60	7	6	6

Report Prepared by :

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